NATURAL RESOURCE CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
SOUTH DAKOTA SUPPLEMENTS ITALICIZED

BRUSH MANAGEMENT

(ac.)
CODE 314

DEFINITION

Removal, reduction, or manipulation of non-herbaceous plants.

PURPOSES

This practice may be applied as part of a conservation management system to accomplish one or more of the following purposes:

Restore natural plant community balance.

Create the desired plant community.

Reduce competition for space, moisture, and sunlight between desired and unwanted plants.

Restore desired vegetative cover to protect soils, control erosion, reduce sediment, improve water quality and enhance stream flow.

Maintain or enhance wildlife habitat including that associated with threatened and endangered species.

Improve forage accessibility, quality and quantity for livestock.

Protect life and property from wildfire hazards.

Improve visibility and access for handling livestock.

Maintain or enhance habitat for threatened and endangered species

CONDITIONS WHERE THIS PRACTICE APPLIES

On brush infested land that has the potential to produce desirable native or adapted plants.

Where adjustments in grazing management alone will not restore the kind of plant cover needed to attain conservation objectives within a reasonable timeframe.

Where brush management will improve areas for livestock, wildlife, recreation, or natural beauty.

Where control of woody water loving vegetation is necessary to conserve moisture.

Where a reduction of brush is necessary to the safety of life and property in areas of high wildfire hazard.

CRITERIA

General Criteria Applicable For All The Purposes Stated Above.

Brush, as used in this standard includes woody half-shrubs, shrubs, and trees that invade areas on which they are not part of the natural plant community or that occur in amounts significantly in excess of that natural to the site.

Brush management will be designed to achieve the desired plant community in*cluding* woody plant density, canopy cover, or height.

Brush Management will be applied in a manner to achieve the desired control of the target woody species and protection of desired species. This will be accomplished by *prescribed burning, mechanical treatment, chemical application, and biological control*, or a combination of these methods.

Brush management will be planned in a manner that will not adversely affect threatened or endangered species or their habitats.

Control undesirable woody plants in a manner that creates the desired plant community *and* does not *create a* wildfire hazard.

Brush management may be applied to the following species:

Common Name	***Scientific Name***
Ponderosa Pine	*Pinus ponderosa*
Eastern Red Cedar	*Juniperus virginiana*
Rocky Mountain Juniper	*Juniperus sopulorum*
Fringed Sagewort	*Artemisia frigidais*
Green Sagewort	*Artemesia dracunculus or campestris*
Big Sagebrush	*Artemesia tridentata*
Sand Sagebrush	*Artemesia filifolia*
Silver Sagebrush	*Artemesia cana*
Western Snowberry	*Symphoricarpus occidentalis*
Russian Olive	*Elaeagnus angustifolia*
Smooth Sumac	*Rhus glabra*
Plains Pricklypear	*Opuntia polycantha*
Siberian Elm	*Ulmus pumila*

Species not contained in the list above may be treated after consultation and approval by the state rangeland management pecialist.

Brush management on shallow soils is not recommended. Brush management should not be applied on sites with less than 25 percent canopy cover unless large numbers of young brush plants are already present and will dominate the plant community at greater than 25 percent or more canopy cover by the end of the planning horizon.

The use of brush control methods having the least potential hazard to humans, other animals, and the environment shall be encouraged. Non-chemical methods of brush management shall be recommended whenever feasible.

I. METHODS:

Chemical Treatment

Specifications for the kind of chemical, methods, and time of application will be in accordance with the chosen chemical label and the latest publication "Weed Control in Grass Pasture and Range Fact Sheet 525P" published by South Dakota State University, Cooperative Extension Service. Chemical rates should not exceed label recommendations but may be less if recommended in the above publication.

All chemicals will be handled and applied in accordance with label directions and federal, tribal, state,and local regulations.

Prescribed Burning

Prescribed burning will be conducted in accordance with the 338-Prescribed Burning Standards. All prescribed burning will be conducted in accordance with federal, state, tribal, and local laws and regulations.

Mechanical Treatment

Equipment will consist of mowers, choppers, beater, bulldozers, blades, rails, chains, scrappers or other suitable equipment.

Biological Treatment

Grazing with different kinds of livestock or during critical growing stages of plants or hoof action associated with winter feeding operations, salt and mineral placement, and/or intensive prescribed grazing can effectively reduce some brush species. Specifications for biological treatment will be developed based on individual problems of the area.

II. SPECIES SPECIFIC TREATMENT RECOMMENDATIONS

Ponderosa Pine *– The preferred method of controlling pine encroachment is prescribed burning. Burning prior to the time trees reach a height of six feet will provide excellent control, insure adequate fine fuels, and reduce hazards associated with prescribed fire in a least cost manner. Mechanical methods such as cutting individual trees or dozing are effective but labor and cost intensive. Chemical methods are also available but are generally cost prohibitive. In areas where applicable, the thinning of Ponderosa Pine to commercial timber production levels may provide an additional source of income while maintaining desirable understory vegetation. See conservation practice Forest Stand Improvement (666) for information on thinning.*

Eastern Red Cedar and Rocky Mountain Juniper- *The preferred method of controlling cedar or juniper encroachment is prescribed burning. Burning prior to the time trees reach a height of five feet will provide excellent control and ensure adequate fine fuels to carry a fire. Mechanical methods such as cutting individual trees, dozing, chaining, and cabling are effective but labor and/or cost intensive. Chemical methods are also available, but generally less cost effective than prescribed burning.*

Fringed and Green Sagewort *– Chemical control methods are preferred due to this species ability to sprout from roots and plant bases following treatments such as prescribed burning or mechanical treatments such as blading. Utilizing alternative grazing animals such as sheep and goats can be effective in controlling this species.*

Big Sagebrush *– Prescribed burning is the preferred least cost control method. Chemical control is also effective if burning is not possible. Mechanical methods such as chaining and cabling are generally not as effective and are higher cost. Utilizing alternative grazing animals such as sheep and goats can be effective in controlling this species.*

Sand and Silver Sagebrush *- Chemical control methods are preferred due to this species ability to sprout from roots and plant bases following treatments such as prescribed burning or mechanical treatments such as blading. Utilizing alternative grazing animals such as sheep and goats can be effective in controlling this species.*

Western Snowberry *- Chemical control methods are preferred due to this species ability to sprout from roots and plant bases following treatments such as prescribed burning or mechanical treatments such as blading. Utilizing alternative grazing animals such as sheep and goats can be effective in controlling this species. There is some evidence that hoof action associated with winter feeding of livestock, salt and mineral placement, and intensive prescribed grazing directly within colonies of this species will reduce it's density.*

Russian Olive and Siberian Elm *– Chemical control methods are generally most effective. Mechanical control methods such as dozing, cabling, or sawing individual trees work well but are labor and cost intensive. There is some evidence these species may sprout following burning. Stumps of individually sawn trees should be chemically treated to prevent sprouting. Control of these species is most effective where trees are under five feet in height.*

Smooth Sumac *- Chemical control methods are preferred due to this species ability to sprout from roots and plant bases following treatments such as prescribed burning or mechanical treatments such as blading. Control of these species is most effective where trees are under five feet in height.*

Plains Pricklypear *– Chemical control methods generally produce the best control. Dense stands of pricklypear can be reduced by blading just below the surface into windrows, however windrows should be turned the following year to prevent bladed pads from re-establishing.*

III. MANAGEMENT AFTER TREATMENT

If chemical methods of brush management are utilized all label restrictions concerning grazing, haying, or other uses will be followed.

Deferment periods required after this practice is applied will be for two years (treatment and following year). The deferment period will be for a minimum of 60 percent of the growing season each year. The growing season is considered to be May 1 to October 15.

Prescribed grazing should be applied to all treated areas to ensure the desired response from the treatments.

Additional Criteria For Improving Wildlife Habitat.

Brush Management will be planned and applied in a manner to meet the habitat requirements of the wildlife of concern.

Areas of critically important wildlife habitat shall be addressed when planning this practice. Brush management will not be applied on steep escarpments, riparian areas, ravines, woody draws, and on areas containing shrubs and trees desirable for the wildlife species of concern.

Some common woody plants that are valuable for wildlife food and cover include: American elm, American plum, Bearberry, Boxelder, Bur oak, Chokecherry, Cottonwood, Currants, Dogwood, and Green ash, other species beneficial to wildlife include: Hackberry, Hawthorn, Hazelnut, Highbush cranberry, Juneberry, Gooseberry, Rose species, Leadplant, Aspen, Sand cherries, Buffaloberry, Skunkbush, Wild grape, and Willow species..

Leaving a 5 to 15 percent canopy cover of existing brush species within the treated area either as a block or a mosaic of treated and untreated areas will decrease the potential of any negative impacts to wildlife associated with this practice.

CONSIDERATIONS

Consider present and future land use opportunities, expected effect on wildlife habitat, potential recreation impacts, aesthetic changes, positive and

negative onsite and offsite environmental impacts, possible hazards, costs, grazing management, technical requirements, and maintenance.

Timing and sequence of brush management in a pasture and/or the entire operating unit should be planned to ensure needed grazing management.

Consider soil erosion potential and difficulty of vegetation establishment when choosing a method of control that causes soil disturbance.

In situations where desirable understory vegetation is not present in adequate amounts to meet objectives, consider seeding using the practice Critical Area Planting (342).

Mechanical, chemical, biological, and prescribed burning methods of brush control may be used singly or in combination depending on such factors as the kind of land (site), topography, brush species, ability of target species to resprout, the size, abundance, and distribution of brush species, hazards associated with treatment, objectives of the land user, and costs in relation to expected benefits.

When conducting mechanical brush control methods, any potential impacts on cultural resources will be considered.

Brush management objectives and procedures may be different for different kinds of land and different land uses. For example:

1. *If primary use of rangeland is for domestic livestock, then the objectives may be to manipulate numbers, species, and distribution of brush species to approximate that of natural conditions. If use is also for wildlife, the objective may be to maintain more brush species than is natural to the site and to manage the brush in a pattern on the land that favors both livestock and wildlife.*
2. *The objective may be to maintain a plant community that is not natural to the site but that provides soil protection and benefits the uses planned for the land. Control of these species is most effective where trees are under five feet in height.*
3. *It is usually desirable to exclude all brush on pastureland except for odd areas or areas left for shade, wildlife, or aesthetic value.*
4. *Brush on land where wildlife is a primary or important use should be manipulated to provide optimum wildlife habitat and to facilitate wildlife management as outlined within a wildlife habitat management plan.*

PLANS AND SPECIFICATIONS

Plans and specifications will be prepared for each pasture, field, or management unit where Brush Management will be applied.

OPERATION AND MAINTENANCE

Operation: Brush Management practices shall be applied using approved materials and procedures. Operations will comply with all local, state, and federal laws and ordinances.

Success of the practice shall be determined by evaluating regrowth or reoccurrence of target species after sufficient time has passed to monitorthe situation and gather reliable data. Evaluation periods will depend on the methods and materials used.

Maintenance: Following initial application, some regrowth, resprouting, or reoccurrence of brush should be expected. Spot treatment of individual plants or areas needing retreatment should be done as needed.